

# SALMON SALVAGE PROJECT

## WILDLIFE BIOLOGICAL EVALUATION

SALMON/SCOTT RIVER RANGER DISTRICT, KLAMATH NATIONAL FOREST



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## I. INTRODUCTION

The purpose of this biological evaluation (BE) is to determine the effects of the Salmon Salvage Project on wildlife species listed as Sensitive by the Pacific Southwest Region, USDA Forest Service.

The Forest Service Sensitive Species list for the Klamath National Forest was provided by the USDA Pacific Southwest Region (2013). This BE addresses the following species from that list:

- Bald eagle (*Haliaeetus leucocephalus*)
- Northern goshawk (*Accipiter gentiles*)
- Willow flycatcher (*Empidonax traillii*)
- California wolverine (*Gulo gulo luteus*)
- Pacific fisher (*Martes pennanti pacifica*)
- American marten (*Martes carina*)
- Pallid bat (*Antrozous pallidus*)
- Townsend's big-eared bat (*Corynorhinus townsendii*)
- Fringed myotis (*Myotis thysanodes*)
- Western pond turtle (*Emys marmorata*)
- Foothill yellow-legged frog (*Rana boylei*)
- Cascades frog (*Rana cascadae*)
- Tehama chaparral snail (*Trilobopsis tehamana*)
- Western Bumblebee (*Bombus occidentalis*)

The Salmon Salvage Project is not within the range of southern torrent salamander (streams within coastal forests), great gray owl, or Siskiyou Mountain salamander. Habitat for the greater sandhill crane (wetlands, marshes, grasslands, or irrigated fields) does not occur in the project area. These species will not be addressed further in this document.

## II. DESCRIPTION OF PROPOSED ACTION

The proposed action is described in chapter 1 and the modified proposed action is described as alternative 2 in chapter 2 of the Project Environmental Assessment (EA).

### Purpose and Need for Action

The purpose and need of the Project is described in chapter 1 of the Project EA.

### Project Design Features

Project design features are available in the Project EA (section 2.4, table 2.6).

## III. SPECIES ACCOUNTS

### Bald Eagle (*Haliaeetus leucocephalus*)

#### Environmental Baseline

Nesting territories are usually associated with lakes, reservoirs, rivers, or large streams and are usually within close proximity of water bodies that support adequate food supply (Lehman 1979). Bald eagle nests are usually located in uneven-aged, multi-storied stands with old-growth components. Most nests in California are located in ponderosa pine/mixed conifer stands and

nest trees are most often ponderosa pine (Lehman 1979). Bald eagles are common during migration and in winter along major river systems such as the Klamath and Scott Rivers, and in agricultural areas such as Scott Valley. Nine nest sites and four roost sites are known to occur on the Forest. Four nest sites are on the west-side of the Forest and the remaining sites are on the eastside.

No eagle habitat occurs in the treatment areas. The treatment units are on the upper third of the slope where bald eagles typically do not nest or roost. No known nest sites occur within or immediately adjacent to the project activities. The closest known bald eagle nest site to the Project is on French Creek, approximately 20 miles from proposed treatment.

#### Direct and Indirect Effects

##### ***Alternative 1***

Under the no action alternative no activities would occur so no direct or indirect effects would occur.

##### ***Alternatives 2 and 3***

No direct or indirect effects to bald eagles are anticipated from the proposed activities with alternatives 2 and 3, because habitat suitable for bald eagle nesting will not be affected and noise activity disturbance to known eagles will not occur.

#### Cumulative Effects

Since there are no direct or indirect effects to bald eagles from the project, there are no cumulative effects.

#### Determination

Because of the distance from known eagle nest sites and the lack of suitable habitat in the project, alternatives 1, 2, and 3 of this project will have **no effect** on bald eagles.

### **Northern Goshawk (*Accipiter gentilis*)**

#### Environmental Baseline

The goshawk is a forest hawk associated with late successional forest, or with mid-successional forests with late successional elements, in mixed conifer or true fir habitat types. Foraging habitat is variable and includes mid- and late-successional forest, natural and man-made openings, and forest edges. Moderate and high quality habitats contain abundant large snags and large logs for prey habitat and plucking posts. Goshawks generally breed in older-age coniferous, mixed, and deciduous forest habitats. This habitat provides large trees for nesting, a closed canopy for protection and thermal cover, and open spaces allowing maneuverability below the canopy. Forest stands containing nests are often small, approximately 25-250 acres; territories may contain 1–5 alternative nest areas. In northern California, maximum distance between alternative nest stands was about 1 mile, and approximately 85% of alternate nest stands were <0.5 mile apart.

On the Forest, habitat consists of mid- and late-successional mixed conifer forest with scattered harvested and natural openings. Goshawk habitat is similar to NSO habitat in the Scott and Salmon Rivers area. Therefore suitable goshawk habitat, for this exercise, is considered equivalent to nesting, roosting and foraging habitat defined for spotted owls.

Post-fire the Salmon Salvage analysis area provides a total of 10,603 acres of habitat suitable for this species. The analysis area is the same boundary as for the spotted owl.

#### Direct and Indirect Effects

##### ***Alternative 1***

Under the no action alternative no activities would occur so no direct or indirect effects would occur.

##### ***Alternative 2***

The proposed salvage commercially treated units in alternative 2 will not affect any goshawk habitat because these areas have been burned at high severity and no longer provide suitable habitat conditions for this species.

For the roadside treatments (Units 401 and 402) this alternative will degrade approximately 624 acres of potential northern goshawk habitat (23 miles of road), but the habitat will remain functional after treatment. There is no expected downgrading or removal of habitat. There will be approximately 895 hazard trees removed (average of 39 trees per mile). The majority of the hazard trees to be removed are less than 22" DBH with a few scattered large diameter hazard trees greater than 38" DBH. Roadside treatments will maintain habitat quality after hazard trees are removed.

Canopy cover is not expected to be measurably changed from existing conditions since the hazard trees to be removed are fire killed and do not contribute to the overall canopy of the stands. Goshawk habitat is expected to remain suitable after treatment of these roadside hazard tree areas. After hazard tree removal, the Forest will evaluate the need for fuel treatment along roads depending on the road's slope position, proximity to natural and manmade fuel breaks, fuel loading, exiting soil cover, and concentration of hazard trees felled. Fuel treatments being considered include: lop and scattering, chipping, jackpot burning, and pile burning.

Within Goshawk Management Area SAR#3 (Garden Gulch Goshawk Management Area), Unit #329 is proposing 0.5 acres of commercial treatment but these acres were burned at high severity and will not further affect habitat since it was lost in the fire. Roadside hazard tree treatments will occur on 18 acres within a portion of Unit 401 that bisects the GMA. This hazard tree removal will result in degradation but will maintain habitat conditions after treatment. Habitat will be maintained in this treatment area. It is also important to note that this GMA has no known goshawk nesting activity and was established based on the available habitat.

##### ***Alternative 3***

This alternative will not downgrade or remove any acres of potential northern goshawk habitat. The proposed hazard tree treatments will have the same effects on goshawk habitat as described in alternative 2; the treatment will remove some snags but will maintain habitat quality. Fuels treatments are not expected to have any effect on this species since the actions will not appreciably alter habitat conditions.

#### Cumulative Effects

Within the Project Area, three known projects are planned or are being implemented; a proposed (about 1,500 acre) community wildfire protection and forest health project (Jess Project), a

reforestation project (Salmon Reforestation Project), and wildfire management project (Yellow-Jacket Ridge Project). The Jess Project focuses on forest health by reducing forest disease and increasing forest resiliency to wildfire thus promoting high quality habitat over the long term. The Jess Project proposes several treatments such as fuels, prescribed fire, commercial thinning, non-commercial thinning, and tree planting. The Salmon Reforestation Project proposes to plant trees within a portion of the Salmon Complex Fire perimeter. The Yellow-Jacket Ridge Project is a planned fuel break along the 40N51 road that is designed to reduce fuel loading within the fuel break area, thereby decreasing the potential for high-intensity fire within and around the project area.

The proposed Jess, Salmon Reforestation, and Yellow-Jacket Ridge Project will provide benefits to the Salmon Salvage Project. The Salmon Reforestation Project will promote and accelerate forest regeneration thus providing habitat more quickly. The Jess Project will aid in reducing the risk of wildfire moving into the already burned Salmon Complex Fire perimeter which will allow the forest to regenerate more quickly. Likewise, the Yellow-Jacket Ridge Project will assist in reducing wildfire moving into the fire perimeter. Therefore the additive effects of the proposed Salmon Reforestation, Jess, and Yellow-Jack Ridge Projects along with the effects discussed in this document will create no additional effects to the species.

#### Determination

For this project alternative 1 will result in a **no effect** to the northern goshawk. Alternatives 2 and 3 will result in a “**may affect individuals, but is not likely to lead to a trend towards Federal listing**” for the northern goshawk.

#### **Willow Flycatcher (*Empidonax traillii*)**

The willow flycatcher is a “rare to locally uncommon” summer resident in wet meadow and montane riparian habitats at 2000–8000’ in the Sierra Nevada and Cascade Range. In California, this species most often occurs in broad, open river valleys or large mountain meadows with lush, high-foliage volume willows (CDFG 2005). Across its range, willow flycatchers typically select willow for nesting but may use other species of shrubs, typically close to ground in low shrubs and bushes near water.

Habitat for willow flycatchers in the western Klamath National Forest is primarily located along the Klamath River and the larger adjacent streams, the Marble Mountain Wilderness, and the Siskiyou Crest. For the past 13 years willow flycatchers have been captured at the Constant Effort Mist Netting Station in willow habitat along the Klamath River near Seiad Valley. This mist-netting station is located approximately 20 miles from the project area. No suitable habitat is known to occur within the project area after the wildfire. The likelihood of the species occurring in the project area is very low given the loss of habitat. Surveys have not been conducted for willow flycatchers specifically for the Salmon Salvage Project. Surveys will not be conducted for this species as the project does not occur within or adjacent to suitable habitat.

#### Direct and Indirect Effects

##### ***Alternative 1***

Under the no action alternative no activities would occur so no direct or indirect effects would occur.

### ***Alternatives 2 and 3***

Since the project area does not contain willow flycatcher habitat as a result of the wildfire, the project will not modify any habitat. With the implementation of riparian reserve related Project Design Standards and the limited activities proposed riparian habitat in the watershed, alternatives 2 and 3 will not limit the availability of riparian habitat conditions for the willow flycatcher in the analysis area in the short-term. In the long-term, these project design standards will provide some shelter and foraging for the species while the habitat develops canopy cover and shrubs within the riparian area.

### **Cumulative Effects**

Within the Project Area, three known projects are planned or are being implemented; a proposed (about 1,500 acre) community wildfire protection and forest health project (Jess Project), a reforestation project (Salmon Reforestation Project), and wildfire management project (Yellow-Jacket Ridge Project). The Jess Project focuses on forest health by reducing forest disease and increasing forest resiliency to wildfire thus promoting high quality habitat over the long term. The Jess Project proposes several treatments such as fuels, prescribed fire, commercial thinning, non-commercial thinning, and tree planting. The Salmon Reforestation Project proposes to plant trees within a portion of the Salmon Complex Fire perimeter. The Yellow-Jacket Ridge Project is a planned fuel break along the 40N51 road that is designed to reduce fuel loading within the fuel break area, thereby decreasing the potential for high-intensity fire within and around the project area.

The proposed Jess, Salmon Reforestation, and Yellow-Jacket Ridge Project will provide benefits to the Salmon Salvage Project. The Salmon Reforestation Project will promote and accelerate forest regeneration thus providing habitat more quickly. The Jess Project will aid in reducing the risk of wildfire moving into the already burned Salmon Complex Fire perimeter which will allow the forest to regenerate more quickly. Likewise, the Yellow-Jacket Ridge Project will assist in reducing wildfire moving into the fire perimeter. Therefore the additive effects of the proposed Salmon Reforestation, Jess, and Yellow-Jack Ridge Projects along with the effects discussed in this document will create no additional effects to the species.

### **Determination**

Due to the factors described above, the Salmon Salvage Project will have **no effect** to the willow flycatcher.

### **California Wolverine (*Gulo gulo*)**

#### **Environmental Baseline**

Sightings of this species are rare in northern California; sightings range from Del Norte and Trinity Counties east through Siskiyou and Shasta Counties, and south through Tulare County. Habitat distribution in California is poorly known for the North Coast and northern Sierra Nevada. In northern California, wolverines range from 500-1500 m elevation (1,600 to 4,800 feet) in Douglas-fir and mixed conifer and true fir habitats. For the purposes of this analysis, NSO nesting, roosting, and foraging habitat is used as a proxy for wolverine habitat; a similar analysis area is considered due to its large annual home range use.

Camera stations and track plate surveys have been conducted on the KNF but these surveys did not find wolverines. There are ten documented detections of wolverines on the Klamath National Forest but no den sites are known. Surveys for wolverines have not been conducted within the Project Area, but the likelihood of a wolverine occupying habitat in the area is very low. Due to the large home ranges used by wolverines, their ability to travel long distances over rugged terrain, the variety of habitats that they use, and the proximity of remote, rugged habitats in Wilderness areas. However, the project area has limited vegetation cover for several potential prey species. Therefore, it is expected that wolverines may travel through the project area, but the wolverine would not spend much time in the area.

### Direct and Indirect Effects

#### ***Alternative 1***

Under the no action alternative no activities would occur so no direct or indirect effects would occur.

#### ***Alternative 2***

The proposed salvage commercially treated units in alternative 2 will not affect any wolverine habitat because these areas have been burned at high severity and no longer provide suitable habitat conditions for this species.

For the roadside treatments (Units 401 and 402) this alternative will degrade approximately 624 acres of potential wolverine habitat (23 miles of road). There is no expected downgrading or removal of habitat. There will be approximately 895 hazard trees removed (average of 39 trees per mile). The majority of the hazard trees to be removed are less than 22" DBH with a few scattered large diameter hazard trees greater than 38" DBH.

Canopy cover is not expected to be measurably changed from existing conditions since the hazard trees to be removed are fire killed and do not contribute to the overall canopy of the stands. Wolverine habitat is expected to remain suitable after treatment of these roadside hazard tree areas. After hazard tree removal, the Forest Service will evaluate the need for fuel treatment along roads depending on the road's slope position, proximity to natural and manmade fuel breaks, fuel loading, existing soil cover, and concentration of hazard trees felled. Fuel treatments being considered include: lop and scattering, chipping, jackpot burning, and pile burning. Roadside treatments will maintain habitat quality after hazard trees are removed.

#### ***Alternative 3***

This alternative will not downgrade or remove any acres of potential wolverine habitat. The proposed hazard tree treatment will have the same effects on wolverine habitat as alternative 2. Fuels treatments are not expected to have any effect on this species since the actions will not appreciably alter habitat conditions.

### Cumulative Effects

Within the Project Area, three known projects are planned or are being implemented; a proposed (about 1,500 acre) community wildfire protection and forest health project (Jess Project), a reforestation project (Salmon Reforestation Project), and wildfire management project (Yellow-Jacket Ridge Project). The Jess Project focuses on forest health by reducing forest disease and

increasing forest resiliency to wildfire thus promoting high quality habitat over the long term. The Jess Project proposes several treatments such as fuels, prescribed fire, commercial thinning, non-commercial thinning, and tree planting. The Salmon Reforestation Project proposes to plant trees within a portion of the Salmon Complex Fire perimeter. The Yellow-Jacket Ridge Project is a planned fuel break along the 40N51 road that is designed to reduce fuel loading within the fuel break area, thereby decreasing the potential for high-intensity fire within and around the project area.

The proposed Jess, Salmon Reforestation, and Yellow-Jacket Ridge Project will provide benefits to the Salmon Salvage Project. The Salmon Reforestation Project will promote and accelerate forest regeneration thus providing habitat more quickly. The Jess Project will aid in reducing the risk of wildfire moving into the already burned Salmon Complex Fire perimeter which will allow the forest to regenerate more quickly. Likewise, the Yellow-Jacket Ridge Project will assist in reducing wildfire moving into the fire perimeter. Therefore the additive effects of the proposed Salmon Reforestation, Jess, and Yellow-Jack Ridge Projects along with the effects discussed in this document will create no additional effects to the species.

#### Determination

For this project alternative 1 will result in a **no effect** to the wolverine. Based on the possibility of disturbance, alternatives 2 and 3 “**may affect individuals, but is not likely to lead to a trend towards Federal listing**” for the wolverine.

#### **Pacific Fisher** (*Martes pennant pacifica*)

##### Environmental Baseline

Fisher habitat distribution occurs from Del Norte and Trinity counties east through Siskiyou and Shasta Counties, and south through the Sierra Nevada to Tulare County. In California, fishers are found to be associated with habitats containing moderate to dense forest canopy at low and mid-elevation; home ranges include mosaics of different vegetation types and forest age classes with complex forest structure for denning, resting, and foraging. Many studies have examined habitat attributes of fisher which have generally described as consisting of high canopy cover, large trees, large snags, large woody debris, large hardwoods, multiple canopy layers, and few openings (Ruggiero et al 1994, Lofroth et al 2010).

General surveys have been conducted on the west side of the Forest and positive fisher detections have been made on Scott River, Oak Knoll and Ukonom Districts. Fishers have been detected on numerous occasions in the Mill Creek drainage approximately 23 miles from the Salmon Salvage Project area. Most detections on or adjacent to the Forest have been were located in mid-late seral true fir, mixed conifer and mixed conifer-hardwood habitats. Prior to the fire, fisher was likely within the project area.

NSO nesting/roosting/foraging habitat is considered a proxy for fisher denning and resting habitat because of the presence of large trees, denser canopy closure, and structural complexity. Zielinski et al (2006) determine a correlation of habitat values between fisher and spotted owl occurrence as described by Zabel et al (2003). Carroll et al (1999) reported a strong correlation of fisher use in landscapes with higher canopy closure, large trees, and large hardwood understory. In this study, late successional reserves were noted to represent a greater proportion of fisher habitat compared to other Federal land



allocations. For this project NSO habitat was the best proxy for older forest habitat conditions that are also important for fisher. The post-fire condition in the analysis area estimates approximately 10,603 acres of fisher habitat.

### Direct and Indirect Effects

#### ***Alternative 1***

Under the no action alternative no activities would occur so no direct or indirect effects would occur.

#### ***Alternative 2***

The proposed salvage commercially treated units in alternative 2 will not affect any fisher habitat because these areas have been burned at high severity and no longer provide suitable habitat conditions for this species.

For the roadside treatments (Units 401 and 402) this alternative will degrade approximately 624 acres of potential fisher habitat (23 miles of road). There is no expected downgrading or removal of habitat. There will be approximately 895 hazard trees removed (average of 39 trees per mile). The majority of the hazard trees to be removed are <22" DBH with a few scattered large diameter hazard trees >38" DBH.

Canopy cover is not expected to be measurably changed from existing conditions since the hazard trees to be removed are fire killed and do not contribute to the overall canopy of the stands. Fisher habitat is expected to remain suitable after treatment of these roadside hazard tree areas. After hazard tree removal, the Forest will evaluate the need for fuel treatment along roads depending on the road's slope position, proximity to natural and manmade fuel breaks, fuel loading, existing soil cover, and concentration of hazard trees felled. Fuel treatments being considered include: lop and scattering, chipping, jackpot burning, and pile burning. Roadside treatments will maintain habitat quality after hazard trees are removed.

#### ***Alternative 3***

This alternative will not downgrade or remove any acres of potential fisher habitat. The proposed hazard tree treatment will have the same effects on fisher habitat as alternative 2. Fuels treatments are not expected to have any effect on this species since the actions will not appreciably alter habitat conditions.

### Cumulative Effects

Within the Project Area, three known projects are planned or are being implemented; a proposed (about 1,500 acre) community wildfire protection and forest health project (Jess Project), a reforestation project (Salmon Reforestation Project), and wildfire management project (Yellow-Jacket Ridge Project). The Jess Project focuses on forest health by reducing forest disease and increasing forest resiliency to wildfire thus promoting high quality habitat over the long term. The Jess Project proposes several treatments such as fuels, prescribed fire, commercial thinning, non-commercial thinning, and tree planting. The Salmon Reforestation Project proposes to plant trees within a portion of the Salmon Complex Fire perimeter. The Yellow-Jacket Ridge Project is a planned fuel break along the 40N51 road that is designed to reduce fuel loading within the fuel break area, thereby decreasing the potential for high-intensity fire within and around the project area.

The proposed Jess, Salmon Reforestation, and Yellow-Jacket Ridge Project will provide benefits to the Salmon Salvage Project. The Salmon Reforestation Project will promote and accelerate forest regeneration thus providing habitat more quickly. The Jess Project will aid in reducing the risk of wildfire moving into the already burned Salmon Complex Fire perimeter which will allow the forest to regenerate more quickly. Likewise, the Yellow-Jacket Ridge Project will assist in reducing wildfire moving into the fire perimeter. Therefore the additive effects of the proposed Salmon Reforestation, Jess, and Yellow-Jack Ridge Projects along with the effects discussed in this document will create no additional effects to the species.

#### Determination

For this project alternative 1 will result in a **no effect** to the fisher. Alternatives 2 and 3 “**may affect individuals, but is not likely to lead to a trend towards Federal listing**” for the fisher based on possible disturbance during implementation.

#### **American Marten** (*Martes caurina*)

##### Environmental Baseline

This species uses mature and old growth forest habitats, typically distributed at a higher elevation than the fisher. Generally, mature and over-mature true fir/hemlock/pine habitat occurring above 5,000 feet in elevation with a dense canopy (>40%) and adequate large, coarse woody debris is considered marten habitat (CDFG 1990). In our area, American martens are limited to conifer-dominated forests and vegetation types nearby. In most studies of habitat use, martens were found to prefer late-successional stands of mesic coniferous forest, especially those with complex physical structure near the ground (Buskirk and Powell 1994). Xeric forest types and those with a lack of structure near the ground are used little or not at all. The preference and apparent need for structure near the ground, especially in winter, appears universal (Ruggiero et al. 1994).

The distribution of marten on the west side of the Klamath is not well known due to the lack of adequate survey data. Surveys for forest carnivores have been described above (see fisher); marten have not been detected at any of the survey stations to date. Incidental sightings of marten have been recorded on four districts (excluding Oak Knoll), but cannot be confirmed. Positive detections at camera survey stations on the Goosenest Ranger District of the Klamath National Forest have found marten using true fir habitats near 7000 feet in elevation.

Martens are considered as an uncommon to common permanent resident of California North Coast regions and Sierra Nevada, Klamath, and Cascades Mountains. Optimal habitats are various mixed evergreen forests with more than 40 percent crown closure, large trees and snags. Important habitats include red fir, lodgepole pine, subalpine conifer, mixed conifer, Jeffrey pine, and eastside pine. On the KNF, marten have been observed in higher elevations, typically within true fir, lodgepole pine, and subalpine conifer stands.

Suitable NSO nesting, roosting and foraging habitat is used as a proxy to evaluate potential American marten habitat where it occurs above 4,500 feet (an estimate of 1,811 acres in the analysis area).

## Direct and Indirect Effects

### ***Alternative 1***

Under the no action alternative no activities would occur so no direct or indirect effects would occur.

### ***Alternative 2***

Suitable NSO nesting, roosting and foraging habitat above 4,500 feet in elevation is used as a proxy to evaluate potential marten habitat. The proposed salvage commercially treated units in alternative 2 will not affect any marten habitat because these areas have been burned at high severity and no longer provide suitable habitat conditions for this species.

For the roadside treatments (Unit 401 and 402) this alternative will degrade approximately 41 acres of potential marten habitat along 4.5 miles of road above 4,500' elevation. There is no expected downgrading or removal of habitat. There will be approximately 43 hazard trees removed (average of 39 trees per mile). The majority of the hazard trees to be removed are <22" DBH with a few scattered large diameter hazard trees >38" DBH. Roadside treatments will maintain habitat quality after hazard trees are removed.

Canopy cover is not expected to be measurably changed from existing conditions since the hazard trees to be removed are fire killed and do not contribute to the overall canopy of the stands. Marten habitat is expected to remain suitable after treatment of these roadside hazard tree areas. After hazard tree removal, the Forest will evaluate the need for fuel treatment along roads depending on the road's slope position, proximity to natural and manmade fuel breaks, fuel loading, exiting soil cover, and concentration of hazard trees felled. Fuel treatments being considered include: lop and scattering, chipping, jackpot burning, and pile burning.

Snags will be retained at level > 5 large snags per acre in clumps in these treated areas to provide for future structure of habitat as conifers are re-established.

### ***Alternative 3***

This alternative will not downgrade or remove any acres of potential marten habitat. The proposed hazard tree treatments will have same effects on marten habitat as described in alternative 2. Fuels treatments are not expected to have any effect on this species since the actions will not appreciably alter habitat conditions.

## Cumulative Effects

Within the Project Area, three known projects are planned or are being implemented; a proposed (about 1,500 acre) community wildfire protection and forest health project (Jess Project), a reforestation project (Salmon Reforestation Project), and wildfire management project (Yellow-Jacket Ridge Project). The Jess Project focuses on forest health by reducing forest disease and increasing forest resiliency to wildfire thus promoting high quality habitat over the long term. The Jess Project proposes several treatments such as fuels, prescribed fire, commercial thinning, non-commercial thinning, and tree planting. The Salmon Reforestation Project proposes to plant trees within a portion of the Salmon Complex Fire perimeter. The Yellow-Jacket Ridge Project is a planned fuel break along the 40N51 road that is designed to reduce fuel loading within the fuel break area, thereby decreasing the potential for high-intensity fire within and around the project area.

The proposed Jess, Salmon Reforestation, and Yellow-Jacket Ridge Project will provide benefits to the Salmon Salvage Project. The Salmon Reforestation Project will promote and accelerate forest regeneration thus providing habitat more quickly. The Jess Project will aid in reducing the risk of wildfire moving into the already burned Salmon Complex Fire perimeter which will allow the forest to regenerate more quickly. Likewise, the Yellow-Jacket Ridge Project will assist in reducing wildfire moving into the fire perimeter. Therefore the additive effects of the proposed Salmon Reforestation, Jess, and Yellow-Jack Ridge Projects along with the effects discussed in this document will create no additional effects to the species.

#### Determination

For this project alternative 1 will result in a **no effect** to the marten. Alternatives 2 and 3 “**may affect individuals, but is not likely to lead to a trend towards Federal listing**” for the marten because of the potential disturbance during implementation.

#### **Pallid Bat (*Antrozous pallidus*)**

##### Environmental Baseline

The pallid bat is a California Species of Special Concern. Throughout California the pallid bat is usually found in low to middle elevation habitats below 6000 feet, however, the species has been found up to 10,000 feet in the Sierras. This species, like many other bats, is extremely sensitive to disturbance at roosting and nesting sites.

A variety of habitats are used, including grasslands, shrublands, woodlands, and coniferous forests. Pallid bats are most common in open, dry habitats that contain rocky areas for roosting. They are a yearlong resident in most of their range and hibernate in winter near their summer roost.

Day roosts may vary but are commonly found in rock crevices and tree hollows; and have been documented in large conifer snags, inside basal hollows of redwoods and giant sequoias, and bole cavities in oaks. Cavities in broken branches of black oak are very important and there is a strong association with black oak for roosting (Pierson 1999). Roosting sites are usually selected near the entrance to the roost in twilight rather than total darkness. Night roosts are usually more open sites and may include open buildings, porches, mines, caves, and under bridges (Pierson 1999).

Suitable roost sites for pallid bats in the form of large trees and snags do occur in the project area. Other structures, including buildings and bridges, also occur within or adjacent to project area, but are much more limited. Surveys have not been conducted within the project area, but because suitable large tree roost sites are fairly common and it is reasonable to conclude that pallid bats are present within the project area. Surveys will not be conducted for this species.

##### Direct and Indirect Effects

#### ***Alternative 1***

Under the no action alternative no activities would occur so no direct or indirect effects would occur.

#### ***Alternative 2***

The proposed salvage commercially treated units in alternative 2 will not affect any bat habitat because these areas have been burned at high severity and no longer provide

optimal suitable habitat conditions for this species. Snags will be retained at level > 5 large snags per acre in clumps in these treated areas to provide for future structure of habitat as conifers are re-established.

For the roadside treatments (Units 401 and 402) this alternative will degrade approximately 624 acres of potential bat habitat (23 miles of road). There is no expected downgrading or removal of habitat. Snags will remain abundant and well distributed throughout the analysis area. There will be approximately 895 hazard trees removed (average of 39 trees per mile). The majority of the hazard trees to be removed are <22" DBH with a few scattered large diameter hazard trees >38" DBH. Pallid bat habitat is expected to remain suitable after treatment of these roadside hazard tree areas.

After hazard tree removal, the Forest will evaluate the need for fuel treatment along roads depending on the road's slope position, proximity to natural and manmade fuel breaks, fuel loading, existing soil cover, and concentration of hazard trees felled. Fuel treatments being considered include: lop and scattering, chipping, jackpot burning, and pile burning. Roadside treatments will maintain habitat quality after hazard trees are removed.

### ***Alternative 3***

This alternative will not downgrade or remove any acres of potential pallid bat habitat. The proposed hazard tree treatments will have the same effects on pallid bat habitat as described in alternative 2. Fuels treatments are not expected to have any effect on this species since the actions will not appreciably alter habitat conditions.

### **Cumulative Effects**

Within the Project Area, three known projects are planned or are being implemented; a proposed (about 1,500 acre) community wildfire protection and forest health project (Jess Project), a reforestation project (Salmon Reforestation Project), and wildfire management project (Yellow-Jacket Ridge Project). The Jess Project focuses on forest health by reducing forest disease and increasing forest resiliency to wildfire thus promoting high quality habitat over the long term. The Jess Project proposes several treatments such as fuels, prescribed fire, commercial thinning, non-commercial thinning, and tree planting. The Salmon Reforestation Project proposes to plant trees within a portion of the Salmon Complex Fire perimeter. The Yellow-Jacket Ridge Project is a planned fuel break along the 40N51 road that is designed to reduce fuel loading within the fuel break area, thereby decreasing the potential for high-intensity fire within and around the project area.

The proposed Jess, Salmon Reforestation, and Yellow-Jacket Ridge Project will provide benefits to the Salmon Salvage Project. The Salmon Reforestation Project will promote and accelerate forest regeneration thus providing habitat more quickly. The Jess Project will aid in reducing the risk of wildfire moving into the already burned Salmon Complex Fire perimeter which will allow the forest to regenerate more quickly. Likewise, the Yellow-Jacket Ridge Project will assist in reducing wildfire moving into the fire perimeter. Therefore the additive effects of the proposed Salmon Reforestation, Jess, and Yellow-Jack Ridge Projects along with the effects discussed in this document will create no additional effects to the species.

### **Determination**

For this project alternative 1 will result in a **no effect** to the pallid bat. Alternative 2 and 3 **“may affect individuals, but is not likely to lead to a trend towards Federal listing”** for

the pallid bat primarily based on the potential disturbance of roosting sites during implementation.

### **Townsend's big eared bat (*Corynorhinus townsendii*)**

#### Environmental Baseline

Townsend's big-eared bats occur throughout the western United States. In California, the species is generally associated with cave systems, but they also found under older bridges, basal tree hollows and in the crevices of old buildings and mining structures (Pierson 1999). This species has been found Pluto Caves and other caves in the area north of Mount Shasta. Foraging associations include edge habitats along streams and areas adjacent to and within a variety of wooded habitats (Pierson 1999). The Townsend's bat is a moth specialist, with over 90 percent of its diet composed of lepidopterans.

Townsend's big-eared bats are sensitive to disturbance at roost sites and may abandon a roost site following a single disturbance (CDFG 1990).

Surveys have not been conducted and no known locations occur within the project area. Caves or open mines are not known to occur within the project area; however, suitable roost sites for Townsend's big-eared bats in the form of large diameter trees are scattered throughout the analysis area. Thus, it is reasonable to assume that Townsend's big-eared bats are present in the analysis area. Surveys will not be conducted for this species.

#### Direct and Indirect Effects

##### ***Alternative 1***

Under the no action alternative no activities would occur so no direct or indirect effects would occur.

##### ***Alternative 2***

The proposed salvage commercially treated units in alternative 2 will not affect bat habitat because these areas have been burned at high severity and no longer provide optimal suitable habitat conditions for this species. Snags will be retained at level > 5 large snags per acre in clumps in these treated areas to provide for future structure of habitat as conifers are re-established.

For the roadside treatments (Units 401 and 402) this alternative will degrade approximately 624 acres of potential bat habitat (23 miles of road). There is no expected downgrading or removal of habitat. Snags will remain abundant and well distributed throughout the analysis area. There will be approximately 895 hazard trees removed (average of 39 trees per mile). The majority of the hazard trees to be removed are <22" DBH with a few scattered large diameter hazard trees >38" DBH. Townsend's big-eared bat habitat is expected to remain suitable after treatment of these roadside hazard tree areas.

After hazard tree removal, the Forest will evaluate the need for fuel treatment along roads depending on the road's slope position, proximity to natural and manmade fuel breaks, fuel loading, existing soil cover, and concentration of hazard trees felled. Fuel treatments being considered include: lop and scattering, chipping, jackpot burning, and pile burning.

### ***Alternative 3***

This alternative will not downgrade or remove any acres of potential Townsend's big-eared bat habitat. The proposed hazard tree treatments will have the same effects on Townsend's big-eared bat habitat as described in alternative 2. Fuels treatments are not expected to have any effect on this species since the actions will not appreciably alter habitat conditions.

#### **Cumulative Effects**

Within the Project Area, three known projects are planned or are being implemented; a proposed (about 1,500 acre) community wildfire protection and forest health project (Jess Project), a reforestation project (Salmon Reforestation Project), and wildfire management project (Yellow-Jacket Ridge Project). The Jess Project focuses on forest health by reducing forest disease and increasing forest resiliency to wildfire thus promoting high quality habitat over the long term. The Jess Project proposes several treatments such as fuels, prescribed fire, commercial thinning, non-commercial thinning, and tree planting. The Salmon Reforestation Project proposes to plant trees within a portion of the Salmon Complex Fire perimeter. The Yellow-Jacket Ridge Project is a planned fuel break along the 40N51 road that is designed to reduce fuel loading within the fuel break area, thereby decreasing the potential for high-intensity fire within and around the project area.

The proposed Jess, Salmon Reforestation, and Yellow-Jacket Ridge Project will provide benefits to the Salmon Salvage Project. The Salmon Reforestation Project will promote and accelerate forest regeneration thus providing habitat more quickly. The Jess Project will aid in reducing the risk of wildfire moving into the already burned Salmon Complex Fire perimeter which will allow the forest to regenerate more quickly. Likewise, the Yellow-Jacket Ridge Project will assist in reducing wildfire moving into the fire perimeter. Therefore the additive effects of the proposed Salmon Reforestation, Jess, and Yellow-Jack Ridge Projects along with the effects discussed in this document will create no additional effects to the species.

#### **Determination**

For this project alternative 1 will result in a **no effect** to the Townsend's big-eared bats. Although alternative 2 and 3 are highly unlikely to affect this species, disturbance from implementation "**may affect individuals, but is not likely to lead to a trend towards Federal listing**" for the Townsend's big-eared bats.

### **Fringed myotis (*Myotis thysanodes*)**

The fringed myotis uses caves, crevices, mines, and buildings for roosting, hibernacula, and maternity colonies (CDFG 1990). These bats typically roost under bark and in tree hollows, and in northern California they day roost in snags only (CDFG 1990). Medium to large diameter snags are important day and night roost sites.

There is increased likelihood of occurrence of this species as snags greater than 12 inches in diameter increases and percent canopy cover decreases. Large snags and low canopy cover, forest habitat types, offer warm roost sites.

Suitable roost sites for fringed myotis bats in the form of large trees and snags do occur in the analysis area. Other structures, including buildings and bridges, also occur within or adjacent to analysis area, but are much more limited. Surveys have not been conducted within the analysis

area, but because suitable large tree roost sites are fairly common and it is reasonable to conclude that fringed myotis bats are present within the analysis area.

#### Direct and Indirect Effects

##### ***Alternative 1***

Under the no action alternative no activities would occur so no direct or indirect effects would occur.

##### ***Alternative 2***

The proposed salvage commercially treated units in alternative 2 will not affect fringed myotis habitat because these areas have been burned at high severity and no longer provide habitat conditions to meet the needs for this species. Snags will be retained at level >5 large snags per acre in clumps in these treated areas to provide for future structure of habitat as conifers are re-established.

For the roadside treatments (Units 401 and 402) this alternative will degrade approximately 624 acres of potential fringed myotis habitat (23 miles of road). There is no expected downgrading or removal of habitat. Snags will remain abundant and well distributed throughout the analysis area. There will be approximately 895 hazard trees removed (average of 39 trees per mile). The majority of the hazard trees to be removed are <22" DBH with a few scattered large diameter hazard trees >38" DBH. Canopy cover is not expected to be measurably changed from existing conditions since the hazard trees to be removed are fire killed and do not contribute to the overall canopy of the stands. Fringed myotis habitat is expected to remain suitable after treatment of these roadside hazard tree areas.

After hazard tree removal, the Forest will evaluate the need for fuel treatment along roads depending on the road's slope position, proximity to natural and manmade fuel breaks, fuel loading, existing soil cover, and concentration of hazard trees felled. Fuel treatments being considered include: lop and scattering, chipping, jackpot burning, and pile burning.

##### ***Alternative 3***

This alternative will not downgrade or remove any acres of potential fringed myotis habitat. The proposed hazard tree treatments will have the same effects to fringed myotis habitat as described in alternative 2. Fuels treatments are not expected to have any effect on this species since the actions will not appreciably alter habitat conditions.

#### Cumulative Effects

Within the Project Area, three known projects are planned or are being implemented; a proposed (about 1,500 acre) community wildfire protection and forest health project (Jess Project), a reforestation project (Salmon Reforestation Project), and wildfire management project (Yellow-Jacket Ridge Project). The Jess Project focuses on forest health by reducing forest disease and increasing forest resiliency to wildfire thus promoting high quality habitat over the long term. The Jess Project proposes several treatments such as fuels, prescribed fire, commercial thinning, non-commercial thinning, and tree planting. The Salmon Reforestation Project proposes to plant trees within a portion of the Salmon Complex Fire perimeter. The Yellow-Jacket Ridge Project is a planned fuel break along the 40N51 road that is designed to reduce fuel loading within the fuel



break area, thereby decreasing the potential for high-intensity fire within and around the project area.

The proposed Jess, Salmon Reforestation, and Yellow-Jacket Ridge Project will provide benefits to the Salmon Salvage Project. The Salmon Reforestation Project will promote and accelerate forest regeneration thus providing habitat more quickly. The Jess Project will aid in reducing the risk of wildfire moving into the already burned Salmon Complex Fire perimeter which will allow the forest to regenerate more quickly. Likewise, the Yellow-Jacket Ridge Project will assist in reducing wildfire moving into the fire perimeter. Therefore the additive effects of the proposed Salmon Reforestation, Jess, and Yellow-Jack Ridge Projects along with the effects discussed in this document will create no additional effects to the species.

#### Determination

For this project alternative 1 will result in a **no effect** to the fringed myotis. Alternatives 2 and 3 “**may affect individuals, but is not likely to lead to a trend towards Federal listing**” for the fringed myotis bat primarily based on the potential disturbance of roosting sites during implementation.

### **Western Pond Turtle (*Emys marmorata*)**

#### Environmental Baseline

Western pond turtles are a highly aquatic species that can be found in ponds, lakes, streams, rivers, marshes, and irrigation ditches that have a muddy or rocky bottom and abundant vegetation (Stebbins 2003). They feed on aquatic plants, insects, worms, fish, and carrion.

Western pond turtles use terrestrial habitat for nesting and sometimes for overwintering. Females lay their eggs in soil and have been recorded nesting up to 300’ from water (Holland 1991). Holland (1991) reported that individuals moved an average of 600’ from water to their overwintering sites.

In the salvage analysis area, western pond turtle habitat only occurs along eight miles of the North Fork of the Salmon River. Western pond turtle is also analyzed as a management indicator species representing marsh, lake, and pond habitat.

#### Direct and Indirect Effects

##### ***Alternative 1***

Under alternative 1 no activities would occur so no direct or indirect effects would occur.

##### ***Alternative 2 and 3***

Salvage and roadside hazard operations will not have any effect on western pond turtle or their habitats. These activities will adhere to Project Design Features and with the limited activities proposed in riparian habitat in the watershed, alternatives 2 and 3 will not affect riparian habitat conditions for the western pond turtle in the analysis area. Drafting proposed in three isolated locations on the North Fork Salmon River (Red Bank campground; Gallia Pond; downstream of Jackass Creek) will follow Project Design Features for drafting as to not create expected impact to western pond turtles or their habitat.

## Cumulative Effects

Within the Project Area, three known projects are planned or are being implemented; a proposed (about 1,500 acre) community wildfire protection and forest health project (Jess Project), a reforestation project (Salmon Reforestation Project), and wildfire management project (Yellow-Jacket Ridge Project). The Jess Project focuses on forest health by reducing forest disease and increasing forest resiliency to wildfire thus promoting high quality habitat over the long term. The Jess Project proposes several treatments such as fuels, prescribed fire, commercial thinning, non-commercial thinning, and tree planting. The Salmon Reforestation Project proposes to plant trees within a portion of the Salmon Complex Fire perimeter. The Yellow-Jacket Ridge Project is a planned fuel break along the 40N51 road that is designed to reduce fuel loading within the fuel break area, thereby decreasing the potential for high-intensity fire within and around the project area.

The proposed Jess, Salmon Reforestation, and Yellow-Jacket Ridge Project will provide benefits to the Salmon Salvage Project. The Salmon Reforestation Project will promote and accelerate forest regeneration thus providing habitat more quickly. The Jess Project will aid in reducing the risk of wildfire moving into the already burned Salmon Complex Fire perimeter which will allow the forest to regenerate more quickly. Likewise, the Yellow-Jacket Ridge Project will assist in reducing wildfire moving into the fire perimeter. Therefore the additive effects of the proposed Salmon Reforestation, Jess, and Yellow-Jack Ridge Projects along with the effects discussed in this document will create no additional effects to the species.

## Determination

Due to the factors described above, the Salmon Salvage Project will have **no effect** to the western pond turtle.

## **Foothill Yellow-legged frog (*Rana boylei*)**

### Environmental Baseline

Known distributions of the foothill yellow-legged frog range through most Pacific drainages west of the Sierra/Cascade Crest from the Santiam River, Oregon to the San Gabriel Drainage in southern California. They are typically found at elevations below 1800 feet (Corkran and Thoms, 1996). Current distribution and abundance of this species has been reduced in the southern portion of its range but still occurs in significant numbers in some coastal drainages. Listed as a California Species of Special Concern, the foothill yellow-legged frog is at risk due to various anthropogenic and environmental threats throughout their range. Among some of the larger rivers in California, predation from introduced bullfrogs has been implicated as a cause of their decline. Increased sediment loads in breeding streams have a potential to reduce survival of eggs.

Breeding occurs in the spring, where adults congregate in habitats consisting of shallow, slow flowing water with pebble and cobble substrate, preferably with shaded riffles and pools. This species is also known to utilize moderately vegetated backwaters, isolated pools, and slow moving rivers with mud substrates in a variety of habitats, including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadow types (Stebbins 2003).

Surveys for the foothill yellow-legged frog have not been conducted in the project area and no known locations occur in the analysis area. The majority of in-stream environments within the

treatment areas are not suitable for the foothill yellow-legged frog as the streams are characterized by steeper gradients and/or fast currents.

#### Direct and Indirect Effects

##### *Alternative 1*

There will be no direct effects to this species as a result of this alternative. There will be no direct effects to this species from this alternative since no habitat occurs in the proposed treatment areas.

##### *Alternatives 2 and 3*

There is no proposed action that would modify foothill yellow-legged frog habitat. Project Design Features will minimize water quality effects generated by the proposed action. Although unlikely to occur in this species habitat, water drafting, used to minimize dust, has the potential to affect individual frogs, if present. Water drafting has Project Design Feature to minimize the amount of water pumped at any given time thus further reducing the likelihood of a frog being harmed. Overall, the direct and indirect effects of the proposed actions will likely be short in duration and will likely have only minor effects on the frogs.

#### Cumulative Effects

Within the Project Area, three known projects are planned or are being implemented; a proposed (about 1,500 acre) community wildfire protection and forest health project (Jess Project), a reforestation project (Salmon Reforestation Project), and wildfire management project (Yellow-Jacket Ridge Project). The Jess Project focuses on forest health by reducing forest disease and increasing forest resiliency to wildfire thus promoting high quality habitat over the long term. The Jess Project proposes several treatments such as fuels, prescribed fire, commercial thinning, non-commercial thinning, and tree planting. The Salmon Reforestation Project proposes to plant trees within a portion of the Salmon Complex Fire perimeter. The Yellow-Jacket Ridge Project is a planned fuel break along the 40N51 road that is designed to reduce fuel loading within the fuel break area, thereby decreasing the potential for high-intensity fire within and around the project area.

The proposed Jess, Salmon Reforestation, and Yellow-Jacket Ridge Project will provide benefits to the Salmon Salvage Project. The Salmon Reforestation Project will promote and accelerate forest regeneration thus providing habitat more quickly. The Jess Project will aid in reducing the risk of wildfire moving into the already burned Salmon Complex Fire perimeter which will allow the forest to regenerate more quickly. Likewise, the Yellow-Jacket Ridge Project will assist in reducing wildfire moving into the fire perimeter. Therefore the additive effects of the proposed Salmon Reforestation, Jess, and Yellow-Jacket Ridge Projects along with the effects discussed in this document will create no additional effects to the species.

#### Determination

For this project, alternative 1 will result in **no effect** to foothill yellow-legged frog. Although minor, alternatives 2 and 3 “**may affect individuals, but is not likely to lead to a trend towards Federal listing**” for the foothill yellow-legged frog primarily based on the potential disturbance from water drafting.

## **Cascades Frog (*Rana cascadae*)**

### Environmental Baseline

The Cascades frog is a medium sized frog; olive to olive-brown with sharply defined dark splotches on the back. It is a montane species found in the Olympic Peninsula, Washington, and in the Cascade Range of Oregon, Washington, and northern California (Stebbins 2003). It appears that populations are declining throughout the range. Reasons for this decline are not well understood, but locally populations have been affected by predation from introduced trout in mountain lakes.

Habitat for this species includes open montane meadows, marshes, ponds, small bodies of water, ephemeral pools, potholes without vegetation, and along small creeks (Stebbins 2003). They are typically found at elevations above 2500 feet (Corkran and Thoms, 1996) and are closely restricted to water (Stebbins 2003). Almost all streams in the project area are characterized by steep gradients or, in low-gradient reaches, and typically consist of dense canopy; this is low quality Cascade frog habitat.

### Direct and Indirect Effects

#### ***Alternative 1***

There will be no direct or indirect effects to this species as a result of this alternative.

#### ***Alternatives 2 and 3***

There is no proposed action that would modify Cascade frog habitat. Project Design Features will minimize water quality effects generated by the proposed action. Water drafting, used to minimize dust, has the potential to affect individual frogs, if present. Water drafting has Project Design Feature to minimize the amount of water pumped at any given time thus further reducing the likelihood of a frog being harmed. Overall, the direct and in direct effects of the proposed actions will likely be short in duration and will likely have only minor effects on the Cascade frog.

### Cumulative Effects

Within the Project Area, three known projects are planned or are being implemented; a proposed (about 1,500 acre) community wildfire protection and forest health project (Jess Project), a reforestation project (Salmon Reforestation Project), and wildfire management project (Yellow-Jacket Ridge Project). The Jess Project focuses on forest health by reducing forest disease and increasing forest resiliency to wildfire thus promoting high quality habitat over the long term. The Jess Project proposes several treatments such as fuels, prescribed fire, commercial thinning, non-commercial thinning, and tree planting. The Salmon Reforestation Project proposes to plant trees within a portion of the Salmon Complex Fire perimeter. The Yellow-Jacket Ridge Project is a planned fuel break along the 40N51 road that is designed to reduce fuel loading within the fuel break area, thereby decreasing the potential for high-intensity fire within and around the project area.

The proposed Jess, Salmon Reforestation, and Yellow-Jacket Ridge Project will provide benefits to the Salmon Salvage Project. The Salmon Reforestation Project will promote and accelerate forest regeneration thus providing habitat more quickly. The Jess Project will aid in reducing the risk of wildfire moving into the already burned Salmon Complex Fire perimeter which will allow the forest to regenerate more quickly. Likewise, the Yellow-Jacket Ridge Project will assist in

reducing wildfire moving into the fire perimeter. Therefore the additive effects of the proposed Salmon Reforestation, Jess, and Yellow-Jack Ridge Projects along with the effects discussed in this document will create no additional effects to the species.

#### Determination

For this project, alternative 1 will result in **no effect** to Cascade frog. Although minor, alternatives 2 and 3 “**may affect individuals, but is not likely to lead to a trend towards Federal listing**” for the Cascade frog primarily based on the potential disturbance from water drafting.

### **Tehama chaparral snail (*Trilobopsis tehemana*)**

#### Environmental Baseline

Habitat for the Tehama chaparral snails includes shaded talus and rockpiles (Burke et al 2000). When environmental conditions are favorable, individuals may range from their refugia and can be found under leaf litter and other debris in adjacent forested habitat. There are no known sites in the project area; however, there is habitat present in the project area.

#### Direct and Indirect Effects

##### ***Alternative 1***

There will be no direct effects to this species as a result of this alternative. There will be no direct effects to this species from this alternative since no habitat occurs in the proposed treatment areas.

##### ***Alternative 2 and 3***

There is no Tehama chaparral snail habitat in the treatment units. Therefore, we do not expect any direct or indirect effects to this species from these alternatives.

#### Cumulative Effects

Since there are no direct or indirect effects to the Tehama chaparral snail, there will be no cumulative effects of the project.

#### Determination

The Salmon Salvage Project alternatives 1, 2, and 3 will have **no effect** on the Tehama chaparral snail.

### **Western Bumblebee (*Bombus occidentalis*)**

#### Environmental Baseline

*Bombus occidentalis* currently occurs in all states adjacent to California. Historically, the species was broadly distributed across western North America along the Pacific Coast and westward from Alaska to the Colorado Rocky Mountains (Koch et al. 2012). Historically, *B. occidentalis* was one of the most broadly distributed bumble bee species in North America (Cameron et al. 2011). Currently, the western bumble bee is experiencing severe declines in distribution and abundance due to a variety of factors including diseases and loss of genetic diversity (Tommasi et al. 2004, Cameron et al. 2011, Koch et al. 2012). In the absence of fire, native conifers encroach upon meadows thus reducing habitat available for bumble bees.

The project area has a few small meadows that could provide potential habitat for the western bumble bee.

#### Direct and Indirect Effects

##### ***Alternative 1***

There will be no direct or indirect effects to this species as a result of this alternative.

##### ***Alternatives 2 and 3***

Direct or indirect effects to this species are unlikely with both alternatives because proposed treatment will not occur in bumblebee habitat.

#### Cumulative Effects

Since there are no direct or indirect effects to the western bumblebee, there will be no cumulative effects of this project.

#### Determination

The Salmon Salvage Project will have **no effect** on the western bumblebee.

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